

## **Metacognitive Strategy Usage of Primary School Teacher Trainees In Relation To Their Gender**

**Latief Ahmad Tali\***

**Ph.D Scholar, Department of Continuing Education**

**Barkatullah University, Bhopal.**

**Irshad Ali Dar\*\***

**Ph.D Scholar, Department of Continuing Education**

**Barkatullah University, Bhopal**

### **Abstract**

Effective learning is not just a matter of innate intelligence. Learning depends, in part, on the effective use of basic cognitive processes such as memory and attention, the activation of relevant background knowledge, and the deployment of cognitive strategies to achieve particular goals. To ensure that the basic processes are used effectively, that the activated knowledge is indeed relevant, and that appropriate strategies are being deployed, learners also need to have awareness and control of their cognitive processes. This higher level cognition was given the label metacognition by American developmental psychologist John Flavell. The present study was conducted to know the metacognitive strategy usage of primary school teacher trainees in relation to their gender. It was a descriptive survey study comprising of three hundred primary school teacher trainees taken randomly from three districts of Jammu and Kashmir. For collection of data Metacognitive Inventory (MCI) was used. The mean and t-test were used to analyze the data and interpret the result. Results showed that the teacher trainees differ significantly in the use of Knowledge of Cognition. Male teacher trainees were found better than female teacher trainees in the use of Knowledge of Cognition. However, no significant

differences were found in Regulation of Cognition among primary school teacher trainees in terms of gender.

Key words: Metacognition, Knowledge of Cognition, Regulation of Cognition.

## **Introduction**

If the school is the important functional locus of efforts for improving quality, certainly the most critical factor within the school in facilitating students' learning are the teachers and their ability to shape a collaborative, motivated, and effective teaching and learning community. Teachers' professional attitudes, energy, knowledge of metacognition and motivation are critical, in combination with teaching skills, in creating quality of learning.

Metacognition refers to learners' awareness of their own knowledge and their ability to understand, control, and manipulate their own cognitive processes. Quite simply Metacognition has been characterized as “thinking about thinking” (Georghiades 2004), “thinking about learning” (Jackson 2004), and “what we know about what we know” (Halpern 1998). Baker (1989) defined it as “the knowledge and control a child has over his or her own thinking and learning activities”. Any process in which students examine the method that they are using to retrieve, develop or expand information is deemed to be metacognitive in nature. Children vary in their ability to solve problems and to learn from experience. These individual differences are related to differences of intelligence, differences in experience and to differences in the use of metacognition. Muhittin and Ali (2011) found in their pre-test/ post-test experimental design study that learning strategies instruction increased awareness of strategy and metacognitive knowledge and it was effective in using metacognitive skills. It was also found that using metacognitive skills increased achievement. Therefore, metacognition is application of knowledge to formulate strategy, thus, knowledge itself is metacognitive if it is dynamically used in strategic manner to ensure that a goal is met.

Metacognition is an important ingredient for learning as empirical studies have shown that metacognitively aware students perform better than less aware ones. Elifet. al. (2011) explored contributions of metacognitive awareness level to students' scientific epistemological beliefs and found that students controlling all aspects of their learning tended to see scientific knowledge as more certain, simple as well as more attainable. Individuals with a high level of

metacognitive knowledge and skill to identify blocks to learning as early as possible and change tools or strategies to ensure goal attainment. Metacognitive strategy usage is positively related to the students' reading ability. The effectiveness of explicit instructions of metacognitive strategies over fourteen week period with a group of forty learners. It was found that after the instructions, the reading score and metacognitive strategy use of the three groups namely: high, moderate and low were significantly higher than those before instructions (Saovopa, 2011). Metacognitive knowledge improves the achievement of learners. Valerie et. al. (2010) reported that children in the training group had significantly higher post-test metacognitive knowledge, metacognitive skills, and mathematical problem-solving scores. They also found that metacognitive training was particularly beneficial to the low achievers. Lydia and Richard (2009) concluded that metacognitive attributes were associated with accounting course achievement.

Mustafa and Ozgul (2009) studied 4th, 5th grade and 6th through 8th grade students and found that for 4th and 5th students' knowledge of cognition, regulation of cognition and quick learning contributed to scientific achievement. For 6th through 8th grade students' knowledge of cognition, regulation of cognition, innate ability and quick learning contributed to science achievement. For both the groups metacognition was related both to gender and socio-economic status, epistemological beliefs were mostly related to gender. Gulsumet. al. (2010) found significant differences in the level of students' cognitive and metacognitive strategy scores and science achievement. Besides elaboration, organization and metacognitive self-regulation strategy use were found to make a significant contribution to students' science achievement. Moreover, prior knowledge, parents' educational level, number of reading materials at home, frequency of buying a daily newspaper, presence of separate study room and presence of computer with internet connection at home were significantly associated with cognitive and metacognitive use and science achievement.

#### Objectives of the Study

- ☐ To study levels of metacognition of primary school teacher trainees.
- ☐ To find out the differences in the use of knowledge of cognition among primary school teacher trainees in terms of gender.

- ☐ To find out the differences in the use of regulation of cognition among primary school teacher trainees in terms of gender.

#### Hypotheses of the study

- ☐ There exists no significant difference in the use of knowledge of cognition of primary school teacher trainees in terms of their gender.
- ☐ Male and female primary school teacher trainees do not differ significantly in the use of regulation of cognition.

### **Methodology**

The study was conducted on 300 pre-service primary school teacher trainees which comprised of 150 male and 150 female. The sample was randomly selected from different teacher training institutions of three districts namely Anantnag, Budgam and Pulwama of Kashmir province of Jammu and Kashmir state. For collection of data Metacognitive Inventory (MCI) constructed and standardized by Punita Govil (2003) was used. The inventory consists of thirty statements dealing with two main strategies of metacognition namely knowledge of cognition and regulation of cognition. Fourteen items deal with knowledge of cognition and sixteen items deal with regulation of cognition. All the statements are positive.

### **Result and Analysis**

The data has been analyzed by descriptive statistics (Mean and Standard Deviation) and inferential statistics (t-test). The results of the study are presented below along with the analysis.

#### **I Results Pertaining to Levels of Metacognition of Primary School Teacher Trainees**

The classification into different levels of metacognition of total sample is presented in table no. 1.1.

Table No. 1.1

Frequency and Percentage of Primary School Teacher Trainees in the Different Levels of Metacognition

S. No.	Levels of Metacognition	Frequency	Percentage
1.	Very High	6	2%
2.	High	88	29%
3.	Average	145	49%
4.	Low	57	19%
5.	Very Low	4	1%
Total	300	100%	

The table no. 1.1 shows the distribution of three hundred primary school teachers in the different levels of metacognition. The percentage of trainees in different levels of metacognition are very high (2%), high(29%), average(49%), low(19%) and very low(1%).

## II. Results pertaining to the Difference in Metacognitive Strategy Usage (Knowledge of Cognition) of Primary School Teacher Trainees in terms of Gender

In order to find out the difference in metacognitive strategy usage of primary school teacher trainees in terms of gender, t-ratio has been calculated and the results are presented in table no.1.2.

Table No. 1.2

### Gender Differences in the Use of Metacognitive Strategies

Metacognitive Strategies      Male

N=150 Female

N=150 SED      t-ValueSignificance

	Mean	SD	Mean	SD			
Knowledge of Cognition	41.17	4.65	39.85	5.12	0.56	2.36	P<.05
Regulation of Cognition	49.38	6.90	48.81	5.94	0.68	0.84	NS

(t-ratio at 0.05 and 0.01 levels of significance are 1.97 and 2.59 respectively)

Table no. 1.2 shows that the calculated t-ratio of knowledge of cognition of male and female primary school teacher trainees is 2.36 which is significant at 0.05 level. Therefore it can be interpreted that there exists a significant difference in knowledge of cognition among male and female teacher trainees. While comparing the mean scores of male and female primary school teacher trainees on knowledge of cognition strategy, male teacher trainees are better than female teacher trainees in the use of knowledge of cognition strategy.

### III. Results pertaining to the Difference in Metacognitive Strategy Usage (Regulation of Cognition) of Primary School Teacher Trainees in terms of Gender

It is also observed from table no. 1.2 that the calculated t-ratio of regulation of cognition of male and female primary school teacher trainees is 0.84 which is not significant at both the levels. Therefore it can be interpreted that male and female teacher trainees do not differ significantly with each other with regard to the regulation of cognition.

Bar Graph Showing Gender Differences in the Use of Metacognitive Strategies

## Discussion and Conclusion

In the present study analysis of the result showed that male and female teacher trainees differ significantly in the knowledge of cognition. Male teacher trainees were better than female counter parts in the use of knowledge of cognition strategy. Male teacher trainees may possess knowledge about themselves as a learner and what influence their performance. They also have knowledge about the execution of procedural skills, when and why to apply various cognitive actions. The results also showed that male and female primary school teacher trainees do not differ significantly in their regulation of cognition. It may be because both male and female primary school teacher trainees select appropriate strategies and allocate the resources that affect performance, constantly checking the use of various strategies, making predictions and selecting appropriate repair strategies, appraising the products and regulatory processes of one's learning, evaluating the learning processes used, reevaluating goals, and revising predictions

Garner & Alexander, (1989) revealed that if students are more metacognitively aware; they become more strategic and perform better than students who are less aware.

## **Recommendations**

- 1) The teachers and teacher educators should be informed about the importance of metacognition and epistemological beliefs and should be explained how they can develop students' metacognition throughout their formal education.
- 2) The teacher should improve their students' metacognitive awareness in order to improve their learning abilities. The more students know about effective learning strategies, the higher their classroom achievement is likely to be. Creating a metacognitive learning environment in a classroom is the responsibility of teacher. He should allow the students to seek understanding by exploring and investigating on their own with teacher as facilitator. He can also use strategies like Reflective Questions and Reflective Prompts, Metacognitive Scaffolding, Modeling, Self-questioning, Self-assessment etc.
- 3) Teachers should take special care to encourage the students to evaluate new information critically to avoid biased assimilation.
- 4) Both central as well as state governments should introduce computers in educational institutions because these have a lot of potential as metacognitive tools. Computers through their ability to interact with users, they can become powerful reflection tools. This will help the student to become aware of his/her processes and help him/her to improve performance on the task in question through reflection on the how's and why's of the chosen problem solving paths.

### **Work Cited**

- Baker, L. (1989). Metacognition, Comprehension Monitoring, and the Adult Reader. *Educational Psychology Review* 11(4), 3–38.
- Elif, A., Tekkaya, and Jale, C. (2011). The Interplay Metacognitive Awareness and Scientific Beliefs. *International Journal on New Trends in Education and Their Implications*, 2(3), 7-13.
- Garner, R. and Alexander, P. A. (1989). Metacognition: Answered and Unanswered Questions. *Educational Psychologist* 24(2), 143–158.
- Georghiades, P. (2004). From the General to the Situated: Three Decades of Metacognition. *International Journal of Science Education*, 26 (3), 365–383.
- Gulsum, A., Semra, S. and Ceren, T. (2010). The Contribution of Cognitive and Metacognitive Strategies Use to Students' Science Achievement. *Educational Research and Evaluation*, 16(1), 1-21.
- Halpern, D. F. (1998). Teaching Critical Thinking for Transfer Across Domains. *American Psychologist*, 53 (4), 449–455.
- Jackson, N. (2004). Developing the Concept of Metalearning. *Innovations in Education and Teaching International*, 41 (4), 391–403.
- Lydia L. F. Schleifer and Richard B. Dull (2009). Metacognition and Performance in the Accounting Classroom. *Issues In Accounting Education*, 24(3), 339-367.
- Muhittin, C. and Ali, M. S. (2011). The Effect of Learning Strategies Instruction on Metacognitive Knowledge, Using Metacognitive Skills and Academic Achievement (Primary Education Sixth Grade Turkish Course Sample). *Educational Science: Theory and Practice*, 11(1), 148-153.



- Mustafa, S. P. and Ozgul, Y. (2009). Elementary Students' Metacognition and Epistemological Beliefs Considering Science Achievement, Gender and Socioeconomic Status. *Elementary Education Online*, 8(3), 676-693.
- Saovapa, W. (2011). The Effect of Metacognitive Strategy Instruction on ELF Thai Students' Reading Comprehension Ability. *Journal of College Teaching and Learning*, 8(5), 31-40.
- Valerie, P., Olivier, S., Isabelle, N. and Roger, F. (2010). Metacognition of Low Achievement in Mathematics: Effect of Training in the Use of Metacognitive Skills to Solve Mathematical Word Problems. *Thinking and Reasoning*, 16(3), 198-220.